The Invention Claimed Is:

1   1. A multiple access, spread-spectrum communication system for processing

2   a plurality of telecommunication information signals received simultaneously for

3   simultaneous transmission over a radio frequency (RF) channel as a code-division-

4   multiplexed (CDM) signal, the system comprising:

5   means for receiving a call request signal corresponding to a

6   telecommunication line information signal, and a user identification signal

7   identifying a user to which the call request and information signal are addressed;

8   a plurality of modem processing means, one of the plurality of modem

9   processing means providing a global pilot code signal, and each of the modem

10   processing means providing a respective message code signal and combining one of

11   the plurality of information signals with the respective message code signal to

12   provide a spread-spectrum processed message signal, the plurality of message code

13   signals of the plurality of modem processing means being synchronized to the

14   global pilot code signal;

15   assignment means responsive to a channel assignment signal for coupling the

16   information signals received on the telecommunication lines to respective indicated

17   ones of the plurality of modem means;

18   a system channel controller, coupled to a remote call-processing means and

19   responsive to the user identification signal, for providing the channel assignment

20   signal; and

21   an RF transmitter means, connected to each of the plurality of modem

22   processing means, for combining the plurality of spread-spectrum processed

23   message signals with the global pilot code signal to generate a CDM signal; for

24   modulating a carrier signal with the CDM signal and for transmitting the modulated

25   carrier signal through an RF communication channel.

1   2. A subscriber unit for a multiple access, spread-spectrum communication

2   system that receives and processes a code-division multiplexed (CDM) signal which

3   modulates a carrier signal in a radio frequency (RF) channel to reconstruct a

4   transmitted information signal assigned to a subscriber comprising:

5   receiving means for receiving the modulated carrier signal from the RF

6   channel and for demodulating the CDM signal from the carrier signal;

7   a subscriber unit controller;

8   modem processing means comprising:

9   a) global pilot code acquisition means comprising a global

10   pilot code generation means for providing a global pilot code signal;

11   a plurality of global pilot code-phase delayed correlation means for

12   correlating the global pilot code signal with the CDM signal to

13   produce a despread global pilot code signal, the code phase of the

14   global pilot signal being changed responsive to an acquisition signal;

15   and means for determining whether the despread global pilot signal is

16   present to produce an acquisition signal;

17   b) a plurality of message code generators which produce a

18   plurality of message code signals synchronized to the global pilot

19   code signal; and

20   c) global pilot code tracking means for producing an error

21   signal responsive to the acquisition signal;

22   d) means for adjusting the global pilot code signal in phase,

23   responsive to the error signal in a sense to produce the acquisition

24   signal which corresponds to an increased level of the despread global

25   pilot signal; and

26   e) a plurality of message signal acquisition means for

27   providing a plurality of despread receive message signals, each

28   acquisition means including a plurality of message signal correlators,

29   each message signal correlator correlating a respective one of the

30   message code signals with the CDM signal to produce a respective

31   despread receive message signal.

1   3. The subscriber unit of claim 2, wherein:

2   the signal from a radio frequency (RF) channel includes a user identification

3   signal and the call type signal each associated with the information signal and

4   assigned to a subscriber unit.

1   4. The subscriber unit of claim 3, wherein:

2   the despread message signals include the user identification signal and the

3   call type signal; and

4   the subscriber system controller is responsive to the user identification signal

5   to provide the call type signal for the received information signal and the despread

6   information signal to the local subscriber.

1   5. The multiple-access/spread-spectrum communication system of Claim 1,

2   wherein the modem processing means further comprises:

3   a) code generation means comprising a generic pilot code means providing a

4   pilot code signal, and a message means for generating a plurality of message code

5   signals; and

6   b) spreading means coupled to the message means for combining each of the

7   information signals, user identification signals, and call type signals with a

8   respective one of the plurality of message code signals to generate a plurality of

9   spread-spectrum processed message signals.

1   6. The multiple access spread-spectrum comminication system of Claim 5,

2 wherein:

3   the generic pilot code means provides a global pilot code signal, and the

4 message means is responsive to a timing signal which is synchronous with the

5 global pilot code signal, such that each of the plurality of message code signals of

6 the plurality of modem processing means is synchronous with the global pilot code

7 signal.

1   7. The multiple access spread-spectrum communication system of Claim 1,

2 wherein:

3   each of the plurality of information signals has several different channel

4 rates; and

5   each of the plurality of message code signals supports a pre-determined

6 information channel rate;

7   and the system further comprises:

8   remote call-processing means for providing a call type signal corresponding

9 to the information signal rate for each of the information signals; and

10   information channel mode modification means, connected to the system

11 channel controller and to the plurality of modem means and responsive to the call

12 type signal, for changing the combination of the information signals and the

13   respective message code signal to another pre-determined one of the message code

14   signals to support a different information channel rate for the message signal.

1   8. The subscriber unit of claim 2, wherein:

2   one of the despread receive message signals includes an information signal

3   and a message type signal corresponding to the information signal rate of one of the

4   information signals; and the subscriber unit further comprises:

5   information channel mode modification means responsive to the message

6   type signal received with the despread receive message signal for changing a

7   received information signal from a first message code to a second pre-determined

8   message code which second message code supports a different despread information

9   channel rate than the first message code; and

10   signal conversion means responsive to the message type signal for

11   selectively converting the despread information signal into a sampled data digital

12   signal.

1   9. A bearer channel modification system for a multiple access spread-

2   spectrum communication system including a plurality of information signals each

3   having several different channel rates which information signals are transmitted as a

4   plurality of message code channels over an Radio Frequency (RF) channel as a

5   Code Division Multiplexed (CDM) signal, the system comprising

6   means for providing a plurality of call type signals corresponding to the

7   information signal rates for the information signals; wherein each of the plurality of

8   message code channels supports a predetermined information channel rate;

9   a transmitter including a first information channel mode modification means

10   responsive to the call type signal for changing the combination of the information

11   signal from a first one of the message code signals to a second one of the message

12   code signals which second message code signal supports a different information

13   channel rate than the first message code signal; and

14   a receiver including a second information channel mode modification

15   means responsive to the call type signal for changing a received information signal

16   from the first message code signal to the second message code signal to support the

17   different information channel rate.

1   10. A bearer channel modification system according to claim 9 wherein the

2   transmitter further includes means for sequentially a) sending the message data

3   combined with the first message code signal to the substantial exclusion of the

4   second message code signal, b) concurrently sending the message data combined

5   with the first message code signal and the message data combined with the second

6   message code signal and c) sending the message data combined with the second

7   message code signal to the substantial exclusion of the first message code signal..

1   11. A bearer channel modification system according to claim 9 wherein the

2   transmitter further includes:

3   means for synchronizing the transmitter to a receiver on a sub-epoch

4 boundary;

5   means for sending the message signal combined with the first message code

6 signal prior to the sub-epoch boundary and for sending the message signal

7 combined with the second message code signal to the substantial exclusion of the

8 first message code signal subsequent to the sub-epoch boundary.

1   12. A multiple access spread-spectrum communication system for

2 dynamically changing the transmission rate of a plurality of information signals

3 received simultaneously over telecommunication lines by a base station and

4 transmitted to a subscriber through a plurality of spread-spectrum message

5 channels, the system comprising

6   a) a base station, connected to a remote call-processor which provides a call

7 type signal identifying an information signal rate of the respective information

8 signal and a conversion method for the respective information signal; comprising:

9   a system channel controller which assigns each of the

10   information signals and call type signals to a respective spread-

11   spectrum message channel;

12   first information channel mode modification means connected

13   to the system channel controller and responsive to the call type signal

14   for changing the combination of the respective information signal

15   from one spread-spectrum message channel to another pre-

16   determined spread-spectrum message channel which supports a

17   different information channel rate; and

18   b) a subscriber unit comprising:

19   a plurality of despreading means, each of the despreading

20   means for recovering a respective one of the information signals and

21   a respective one of the call type signals from a respective one of the

22   spread-spectrum message channels;

23   second information channel mode modification means

24   responsive to the call type signal for reassigning the despreading

25   means to another determined despreading means corresponding to a

26   different spread spectrum channel wherein a different information

27   signal rate is supported; and

28   a signal conversion means responsive to the call type signal

29   for selectively converting the despread information signal into a

30   digital data signal.

1   13. A method for capacity management in a spread-spectrum

2   communication system including a base station and a plurality of subscriber units

3   (SUs), wherein the base station transmits to the SUs a plurality of spread-spectrum

4   channels including an access channel having a traffic access value which is received

5   by each SU, and a respective plurality of message channels; and wherein each SU

6   transmits to the base station an assigned channel having a power alarm value and a

7   SU message channel, the method comprising the steps of:

8   measuring, by the base station, a transmit power level of the access channel

9   and the plurality of message channels;

10   comparing, by the base station, the transmit power level to a first

11   predetermined power value to produce a power comparison output value;

12   blocking transmission of an assigned channel and a respective SU message

13   channel, responsive to the power comparison output value, by setting the traffic

14   access value to a first predetermined value when the transmit power level is

15   equivalent to or greater than the predetermined value, wherein one SU of the

16   plurality of SUs, responsive to the traffic access value, does not transmit the

17   assigned channel and the SU message channel;

18   measuring, by each ones of the SUs, a transmit power level of the respective

19   SU for the respective assigned channel and message channel;

20   comparing by each ones of the SUs the transmit power level of the

21   respective SU to a second predetermined value; and

22   indicating a maximum power condition to the base station, by one SU, by

23   setting the respective power alarm value to an alarm condition value when the

24   transmit power level of the SU is equivalent to or greater than the second

25   predetermined value; and

26   blocking transmission of the respective assigned channel and SU message

27   channel of each ones of the SUs, by the base station responsive to the alarm

28   condition value, by setting the traffic access value to the first predetermined value.

1   14. A method for conserving capacity of an ISDN wireless link of a spread-

2   spectrum communication system including a first spread-spectrum transceiver and a

3   second spread-spectrum transceiver, said first spread-spectrum transceiver receiving

4   a digital data signal including a predetermined flag pattern corresponding to an idle

5   period and transferring the digital data signal to said second transceiver as a spread

6   spectrum signal, and said second spread-spectrum transceiver receiving the spread

7   spectrum signal and delivering the digital data signal, the method comprising the

8   steps of:

9   delaying, by the first transceiver, the digital data signal to form a delayed

10   digital data signal;

11   monitoring the digital data signal to detect the predetermined flag pattern;

12   transmitting the delayed digital data signal as the spread-spectrum signal to

13   the second transceiver;

14   suspending transmission of the delayed digital data signal when the flag

15   pattern is present; ·

16   detecting, by the second transceiver, the absence of the delayed digital data

17 signal; and

18   inserting the predetermined flag pattern in the delivered digital data signal.